

AMENDED CLAIMS

[received by the International Bureau on 22 March 2004 (22.03.04);
claims 4 and 5 added, remaining claims unchanged. (8 Pages)]

1. A modified breathing apparatus for medicating an air stream, said modified breathing apparatus comprising:
 - 5 a breathing apparatus;
a medication chamber adapted to store and discharge a therapeutic agent;
a delivery pathway between the chamber and an intake air pathway of the breathing apparatus; and
releasing means for selectively discharging the therapeutic agent from the
10 chamber into the intake air pathway.
2. The modified breathing apparatus of claim 1 wherein the breathing apparatus is selected from a regulator suitable for delivering air from a source of compressed air, a snorkel or part thereof, a gas mask, a filter mask, a rebreathing
15 device or a respiratory mask.
3. The modified breathing apparatus of claim 2 wherein the breathing apparatus is a second stage regulator for scuba diving.
- 20 4. The modified breathing apparatus of claim 2 wherein the breathing apparatus is a snorkel or part thereof.
5. The modified breathing apparatus of claim 1 wherein the breathing apparatus is a self-contained breathing apparatus ("SCBA") suitable for use in
25 firefighting and rescue, industry, shipping, mining, mountaineering, hazardous environment, aircraft and/or conditions of higher or lower atmospheric pressure.
6. The modified breathing apparatus of claim 1 wherein the medication chamber is sealed to resist entry of water, mud, dust or other contaminants.
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7. The modified breathing apparatus of claim 6, wherein the therapeutic agent

AMENDED SHEET (ARTICLE 19)

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WO 2004/045720

PCT/AU2003/001526

-46-

is housed in a container, said container adapted to locate in the medication chamber.

8. The modified breathing apparatus of claim 1 wherein the medication
5 chamber is formed integrally with the breathing apparatus.

9. The modified breathing apparatus of claim 1 wherein the medication
chamber is formed for releasable engagement with the breathing apparatus.

10. The modified breathing apparatus of claim 1 further comprising balance
10 means for substantially equalising pressure in the chamber with ambient pressure.

11. The modified breathing apparatus of claim 7 wherein the container for
housing the therapeutic agent is a pressurised canister.

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12. The modified breathing apparatus of claim 11 wherein the pressurised
canister has a release valve which is pressure activated to discharge the
therapeutic agent.

13. The modified breathing apparatus of claim 1 wherein the therapeutic agent
20 is one or more of albuterol, salbutamol, adrenaline, beconase or glucose.

14. The modified breathing apparatus of claim 7 wherein the container
comprises a capsule, a gelatine capsule or a blister pack.

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15. The modified breathing apparatus of claim 1 wherein the delivery pathway
is formed by the chamber being disposed along the intake airway or pathway.

16. The modified breathing apparatus of claim 1 wherein the delivery pathway
30 is a bore, channel or aperture.

AMENDED SHEET (ARTICLE 19)

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WO 2004/045720

PCT/AU2003/001526

-47-

17. The modified breathing apparatus of claim 16 wherein the delivery pathway is a detour pathway adapted to direct some or all of the intake air through the chamber.
- 5 18. The modified breathing apparatus of claim 16 wherein the delivery pathway includes valve means operable to open and close the bore, channel or aperture.
19. The modified breathing apparatus of claim 18 wherein the valve means is a slide lock.
- 10 20. The modified breathing apparatus of claim 19 wherein the slide lock includes locking means to prevent unintentional activation.
21. The modified breathing apparatus of claim 20 wherein the locking means is a locking nut.
- 15 22. The modified breathing apparatus of 16 wherein the delivery pathway is formed by two or more separate pathways between the chamber and the intake air pathway.
- 20 23. The modified breathing apparatus of claim 11 wherein the releasing means comprises a rotatable dial or control for activating a displacement mechanism to displace the pressurised canister or a seat co-operating with the canister and thereby activate the release valve of the pressurised canister.
- 25 24. The modified breathing apparatus of claim 23 wherein the displacement means is a cam operated slide positioned in the medication chamber.
- 30 25. The modified breathing apparatus of claim 1 wherein a rotatable dial or control operates a mechanism to displace a measured amount of therapeutic agent and position it in the delivery pathway for discharge into the intake air

AMENDED SHEET (ARTICLE 19)

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WO 2004/045720

PCT/AU2003/001526

-48-

pathway.

26. The modified breathing apparatus of claim 11 wherein the releasing means includes a pressure activated button for displacing the canister or a seat
5 cooperating with the canister to discharge the therapeutic agent through a release valve of the pressurised container.

27. The modified breathing apparatus of claim 26 wherein displacement of the seat or canister clears one or more apertures to provide or open the delivery
10 pathway.

28. The modified breathing apparatus of any one of claims 23, 25 or 26 wherein depression of a pressure activated button or rotation of a rotatable dial or control rotates a delivery chute into a discharge position from an inactive position.
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29. The modified breathing apparatus of claim 28 wherein rotation of the delivery chute clears one or more apertures to provide the delivery pathway.

30. The modified breathing apparatus of claim 1 further including counting means for indicating, at least approximately, the number of doses of therapeutic
20 agent that have been discharged from the medication chamber.

31. The modified breathing apparatus of claim 30 wherein the counting means is formed as one or apertures in the chamber wall with moveable indicia visible
25 therethrough, said moveable indicia providing an indication of either or both the number of dosages discharged from the chamber or the level of residual therapeutic agent in the chamber.

32. The modified breathing apparatus of claim 1 wherein a mouthpiece is
30 formed to provide separation between the teeth of a user.

AMENDED SHEET (ARTICLE 19)

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WO 2004/045720

PCT/AU2003/001526

-49-

33. The modified breathing apparatus of claim 32 wherein the mouthpiece has an upper shield for receiving the upper teeth and a lower shield for receiving the lower teeth and an inlet aperture positioned between the upper and lower shields.
- 5 34. A medication chamber for use in medicating an air stream, the medication chamber comprising:
an outer housing defining an internal chamber containing a therapeutic agent;
mounting means for fixing the medication chamber to an air channelling
10 device;
at least one delivery path from the internal chamber externally and adaptable to delivery the therapeutic agent to an air pathway in the air channelling device; and
releasing means for releasing the therapeutic agent from the internal
15 chamber.
35. The medication chamber of claim 34 wherein the outer housing is formed of metal, plastic or polyvinyl chloride.
- 20 36. The medication chamber of claim 34 wherein the internal chamber is sealed to resist entry of water, mud, dust or other contaminants.
37. The medication chamber of claim 34 wherein the outer housing is formed as two interengageable sections.
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38. The medication chamber of claim 37 wherein the two sections are screw threadably engageable.
39. The medication chamber of claim 34 wherein the therapeutic agent is any
30 one of more of salbutamol, beconase, adrenaline, aminophylline or glucose.

AMENDED SHEET (ARTICLE 19)

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WO 2004/045720

PCT/AU2003/001526

-50-

40. The medication chamber of claim 34 wherein the therapeutic agent is held in a pressurised container having a release valve, the pressurisable container locatable inside the outer housing.
- 5 41. The medication chamber of claim 34 wherein the mounting means comprises one or more recesses or slots for receiving a fixing or locating device such as a screw and/or a guide tab.
- 10 42. The medication chamber of claim 34 wherein the at least one delivery path is an outlet channel in communication with the release valve of the pressurised container.
- 15 43. The medication chamber of claim 40 wherein the releasing means includes a rotatable dial for activating a cammed mechanism to displace the canister and operate the release valve to thereby discharge a dose of therapeutic agent.
44. The medication chamber of claim 40 wherein the cammed mechanism operates a slidable seat to activate the release valve of the pressurised canister.
- 20 45. The medication chamber of claim 43 or claim 44 wherein the releasing means includes a pressure activated button for displacing the canister or the seat and activating the release valve.
46. The medication chamber of claim 34 wherein the releasing means
25 comprises a mechanism for delivering a powder to the air pathway.
47. The medication chamber of claim 46 wherein the mechanism comprises a geared arrangement for advancing and opening a blister pack to present the powdered agent contained therein to the air pathway.
- 30 48. The medication chamber of claim 46 wherein the mechanism comprises a

AMENDED SHEET (ARTICLE 19)

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WO 2004/045720

PCT/AU2003/001526

-51-

rotatable dispenser for dispensing a powered agent to the air pathway.

49. The medication chamber of claim 46 wherein the mechanism further comprises valve means operable to open or close the delivery pathway.

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50. The medication chamber of claim 34 wherein the air channelling device is one or more of a regulator for scuba diving, a snorkel, a breathing apparatus such as a respirator, a mask, an air conduit or a rebreathing device.

10 51. The medication chamber of claim 50 wherein the air conduit is positionable in engagement with the medication chamber and adapted to discharge directly into a user's mouth or nose.

15 52. The medication chamber of claim 51 wherein the conduit has an angular deviation in an internal lumen.

53. The medication chamber of claim 48 wherein the conduit further comprises a cap mounted to its external outlet and adapted for removal for use.

20 54. The medication chamber of claim 53 wherein the cap occludes an accessory air inlet aperture which is cleared by removal of the cap to provide a flow pathway to entrain the therapeutic agent.

25 55. The medication chamber of claim 34 wherein the outer housing includes indicator means for indicating, at least approximately, the content status of the therapeutic agent in the internal chamber and/or the number of doses of therapeutic agent which have been dispensed.

30 56. The medication chamber of claim 34 wherein the outer housing further comprises an inlet pathway for receiving a pressurised air supply into the chamber.

AMENDED SHEET (ARTICLE 19)

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WO 2004/045720

PCT/AU2003/001526

-52-

57. The medication chamber of claim 56 wherein the outer housing further comprises an outlet valve for discharging air from the internal chamber when air pressure inside the chamber exceeds the pressure outside the chamber.

5 58. The medication chamber of claim 34 wherein the outer housing is insulated to resist thermal fluctuations.

59. A method of medicating an air stream in a breathing apparatus, the method comprising the steps of mounting a chamber containing a therapeutic agent to a
10 breathing apparatus and introducing one or more doses of the therapeutic agent into an inlet pathway for inspiratory air.

60. The method of claim 59 wherein mounting the chamber may comprise forming the chamber integrally with the breathing apparatus.

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61. The method of claim 59 wherein mounting the chamber includes the step of forming a separate chamber and reversibly mounting it to the breathing apparatus.

62. The method of claim 59 further including the step of positioning a container
20 holding the therapeutic agent in the chamber.

63. The method of claim 62 wherein the container is a pressurised container.

64. The method of claim 59 wherein the step of introducing one or more doses
25 of the therapeutic agent may include the step of activating an agent releasing mechanism by depressing a button or rotating a control dial or knob.

65. The method of claim 59 wherein the step of introducing one or more doses of the therapeutic agent into an inlet pathway may comprise the step of introducing
30 the therapeutic agent directly into the inlet pathway from the chamber or through a delivery air pathway from the chamber to the inlet pathway.

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